finely divided iron by subjecting it at a suitable temperature to a carbonizing gas producing finely divided steel of the desired carbon content.

8. The process of making steel which comprises converting iron or steel scrap to oxide of iron, treating this so as to produce finely divided metallic iron, carbonizing the finely divided iron, and compressing the product into a solid body.

9. The process of making iron or steel products without melting or smelting, which comprises agitating iron or steel scrap in a heated container in the presence of steam so as to produce finely divided iron oxide, and subsequently passing the hydrogen given off during the oxidizing step through the container so as to reduce the oxide to finely divided metallic iron.

10. The process of making steel which comprises treating iron or steel scrap so as to produce oxide of iron, reducing the oxide of iron to metallic iron in finely divided state, subjecting the metallic iron to the action of a carbonizing gas until carbonized the desired amount, and forming by compression a solid body from the product thus obtained.

11. The process of making alloys which comprises treating iron or steel scrap with an oxidizing medium so as to produce iron oxide, reducing the oxide to metallic iron in powdered form, carbonizing the metallic iron, adding the desired amount of the alloying metal or metals or compounds thereof at a suitable point in the process so as to obtain a uniform mixture of finely divided steel and of the metal or metals to be alloyed therewith, and subsequently subjecting the mixture to severe pressure so as to produce a solid body.

12. The process of making alloys which comprises treating iron or steel scrap with an oxidizing medium so as to produce iron oxide, reducing the oxide to metallic iron in powdered form, carbonizing the metallic iron, adding the desired amount of the alloying metal or metals or compounds thereof at a suitable point in the process so as to obtain a uniform mixture of finely divided steel and of the metal or metals to be alloyed therewith, subsequently subjecting the mixture to severe pressure so as to produce a solid body, and heating it to a point below the melting temperature of the least refractory metal.

13. The process which comprises converting iron or steel scrap into finely divided iron oxide, treating the oxide so as to convert it to powdered metallic iron, subsequently treating the metallic iron so as to produce a solid metallic body, and heating it.

14. The process which comprises oxidizing iron or steel scrap, treating the same so as to produce finely divided iron oxide, subjecting the oxide to the action of a reducing medium under heat conditions which will convert the oxide to finely divided metallic iron, and producing a solid body by compression and subsequent heating.

In testimony whereof, I hereunto affix my signature.

JOSEPH A. WILLIAMS.